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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,837	04/06/2006	Mitsuhiro Horio	P29478	5021
7055 7590 05/21/2009 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191				
EXAMINER LACLAIR, DARCY D				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
05/21/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
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Office Action Summary

Application No.

10/574,837

Applicant(s)

HORIO ET AL.

Examiner

Darcy D. LaClair

Art Unit

1796

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7-10,12 and 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-10,12 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

All outstanding rejections, except for those maintained below are withdrawn in light of the amendment filed on **3/10/2009**.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The new grounds of rejection set forth below are necessitated by applicant's amendment filed on **3/10/2009**. In particular, **Claim 1** has been amended to recite a hydrogenated aromatic vinyl compound-conjugated diene compound random copolymer comprising aromatic vinyl compound units and conjugated diene compound units wherein ethelenic unsaturated groups of polybutadiene portions are hydrogenated after random polymerization of the aromatic vinyl compound with the conjugated diene compound. This limitation, specifically hydrogenation of the conjugated diene, as well as hydrogenation of the conjugated diene which is specifically polybutadiene, was not present in the claims at the time of the preceding Office Action. Thus, the following action is properly made **FINAL**.

Claim Rejections - 35 USC § 112

1. **Claim 1** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "wherein ethyleneinc unsaturation groups of polybutadiene portions are hydrogenated" in the block copolymer (B), which is

composed of a hydrogenated aromatic vinyl compound-conjugated diene compound random copolymer comprising aromatic vinyl compound units and conjugated diene compound units. There is insufficient antecedent basis for this limitation in the claim. Specifically, the description of the copolymer recites only diene units, but the explanation of the hydrogenation recites a specific type of unit, namely polybutadiene.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. **Claims 1-5, 7-11 and 12-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Doki et al. (US 2002/0115790)** in view of **Shibata et al. (US 5,191,024)**.

The rejection is adequately set forth in **paragraph 4** of the office action mailed **12/10/2008**, and is incorporated here by reference.

It is noted that **Claim 1**, with respect to the ethylenic unsaturated groups of polybutadiene portions hydrogenated after random polymerization of the aromatic vinyl compound with the conjugated diene compound,=, is stated in product by process format.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

Absent showing of criticality, the process limitations in a product-by-process claim do not carry patentable weight. Never the less as this process is taught by Shibata, it is clarified below.

With regard to the amendment to Claim 1, Doki teaches that the thermoplastic elastomer copolymer compound comprising a vinyl aromatic monomer and copolymer of a styrene monomer and a diene monomer copolymerized with the styrene monomer contains dienes such as butadiene, and that elastomers such as polybutadiene may be copolymerized as well. (See par [0033]) Shibata, in elaborating on the specifics of the hydrogenated copolymer taught by Doki, teaches that the conjugated diene includes 1-3 butadiene, which is most preferable. (See col 2 line 42-49) Furthermore, Shibata exemplifies 1,3-butadiene. (See Example 1 in Shibata, and p. 5 of the office action mailed 12/10/2008) This is consistent with a polybutadiene component. With regard to hydrogenation after random polymerization, this is demonstrated in Example 1, col 18 line 59- col 19 line 18, specifically, when the conversion was approximately 100%, catalyst was added and the mixture was subjected to further reaction, cooled, stripped, and dried to obtain a hydrogenated diene block copolymer. This appears to be the same process used by applicant. (See applicant's specification, p. 59-60, polymer b-1 and b-2 preparation)

Response to Arguments

3. Applicant's arguments filed **3/10/2009** have been fully considered. Specifically, applicant argues **(A)** Applicant has amended Claims 1, 4, and 9 to remove parentheses

and revise the weight percent range of block B2, **(B)** Applicant has amended claim 1 to address the rejection under 25 USC 112, first paragraph, **(C)** Applicant submits that the action fails to identify any reason that would have prompted a person of ordinary skill in the art to prepare a polyoxymethylene resin composition according to claim 1, having "hydrogenated aromatic vinyl compound-conjugated diene compound-conjugated diene compound random copolymer comprising aromatic vinyl compound units and conjugated diene compound units wherein ethelenic unsaturated groups of polybutadiene portions are hydrogenated after random polymerization of the aromatic vinyl compound with the conjugated diene compound"; applicant's submit that the Office has not provided any reason as to why one of ordinary skill in the art would combine Shibata and Hahn to remedy the deficiency of Doki with regard to hydrogenating the styrene compound; there is nothing in Doki or Shibata that would suggest this combination and **(D)** Applicant submits that the presently claimed invention shows unexpected results, and in view of these unexpected results, the rejection should be withdrawn; Tables 1-4 of the present application disclose that the claimed invention imparts excellent oil resistance and hole-sliding properties over comparative examples that do not compound-conjugated diene random copolymer blocks.

With respect to argument (A), applicant's arguments have been considered and the objections to Claims 1, 4, and 9 have been withdrawn *in light of applicant's amendment*.

With regard to argument (B), applicant's arguments have been considered and the rejection under 35 USC 112, first paragraph been withdrawn *in light of applicant's*

amendment. The revision clarifies the claim language, specifying that it is the diene portions of the block copolymer which are hydrogenated. The specification supports hydrogenation of the conjugated diene during post polymerization hydrogenation treatment. (See p. 59-60, par [0088]-[0089] and p. 19, line 3)

With regard to argument (C), the examiner notes that there are two rejections at issue. The first is Doki in view of Shibata, which is drawn to the interpretation of the claims wherein the block copolymer is hydrogenated yielding hydrogenated dienes and largely unhydrogenated aromatic vinyl compounds. The second is Doki in view of Shibata, further in view of Hahn, which is drawn to the interpretation of the claims wherein the block copolymer is hydrogenated yielding hydrogenated aromatic vinyl compounds.

With regard to the rejection over Doki in view of Shibata, further in view of Hahn, applicant's arguments have been considered and the rejection been withdrawn ***in light of applicant's amendment.*** This amendment clarifies that the aromatic vinyl component of the block copolymer is not hydrogenated, and therefore the amendment renders this rejection moot.

With regard to the rejection over Doki in view of Shibata, applicant's arguments have been considered but are ***not persuasive.*** In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge

generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Doki teaches a copolymer of a styrene monomer and a diene monomer copolymerized with a styrene monomer, with at least two polymer segments (or blocks), (see par [0032]0-[0034]) and *exemplifies* a hydrogenated block copolymer. (See par [0093]) Doki does not explicitly teach that this polymer is randomly copolymerized, however in view of this teaching, it would be obvious to one of ordinary skill in the art to employ a hydrogenated block copolymer. Shibata teaches a hydrogenated block copolymer. This copolymer is a hydrogenation product of an (A)-(B) block copolymer where the (B) block is a random copolymer block. (See abstract) The polymer of Shibata meets the criteria of Doki's copolymer in that it is a copolymer having an alkenyl aromatic block and a diene-alkenyl aromatic block. The teaching of Shibata adds only that the second block is randomly copolymerized. Shibata teaches that the inventive copolymer can be used in polyoxymethylene (see col 11 line 11) and is useful in automotive or electronic moldings, and that it provides good low temperature impact resistance, paintability, and flexibility. (See col 1 line 43-50) These are clear and distinct benefits to employing the polymer of Shibata in a composition. Furthermore, Doki generically teaches such a polymer, which makes it clear that the polymer of Shibata would be readily employed in Doki's composition. Contrary to applicant's assertion that the examiner has provided no motivation, for all of the reasons cited, the combination of Doki and Shibata *would* be obvious to one of ordinary skill in the art.

With regard to argument (D), the examiner notes that the procedure for preparing the block copolymer taught by Shibata appears to be the same process as that used by applicant. (See the Office Action mailed 12/10/2008, paragraph bridging pp. 5-6) Although applicant has argued that there are unexpected results over comparative examples that do not contain compound-conjugated diene random copolymer blocks, the copolymer of Shibata DOES contain these groups, and teaches benefits to employing them. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darcy D. LaClair whose telephone number is (571)270-5462. The examiner can normally be reached on Monday-Friday 8:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner
Art Unit 1796

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